

SR 167 / I-405 HOT Lanes

The SR 167/ I-405 HOT lanes project would provide two HOT lanes in each direction along most of SR 167 and I-405 for a total length of about 39 miles. The project includes adding one additional lane in each direction along SR 167 plus converting the existing HOV lane to HOT, with HOV 3+ vehicles going toll-free. On I-405, either one or two additional lanes in each direction would be added depending on the segment. Where two lanes are added, one would serve as an additional general-purpose lane while the other would be used in combination with the converted HOV lane. We compared the performance of this alternative to one where the same capacity was added for use by general purpose traffic, without tolls.



- The motivation for pricing is to optimize system performance.
- In 2030, the Build HOT lanes scenario would result in more traffic throughput in the corridor than the comparison scenario due to better utilization of available capacity through pricing.
- Average corridor speeds would be expected to increase by 7-11 mph during the am peak period when considering both the general purpose and the managed lanes. The value of these time savings is conservatively estimated at \$43 million per year.
- The cost of constructing the improvements in this corridor is estimated at over \$8 billion. The cost to toll the corridor is about \$80 million.
- Tolling under a HOT lanes scenario could be expected to contribute an estimated \$200 million to capital improvements, about 2.5 percent of the cost of highway construction, but more than enough to cover the additional cost of toll collection

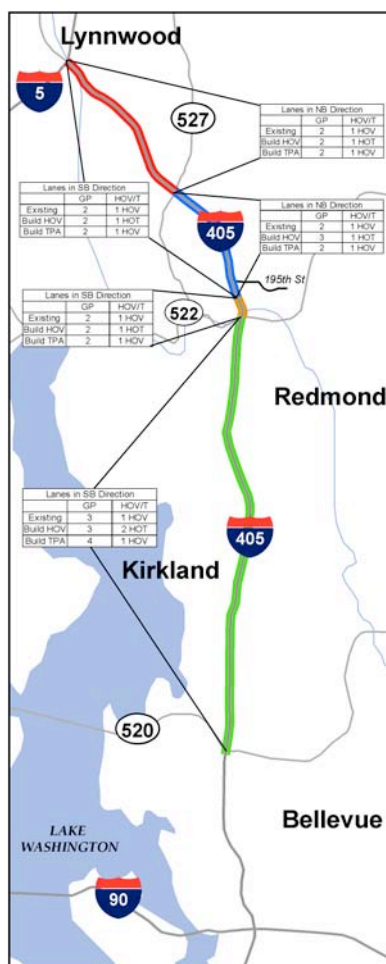
Policy Findings

Dedicating additional capacity in a congested highway corridor to HOT lanes can improve corridor operations as compared to a non-pricing alternative. Such a system is attractive because it provides drivers a clear choice between improved speed and reliability when they really need it and basic service when they do not.

Revenue generation is expected to be relatively low in comparison to the significant expenditure needed to make the improvements, however more than adequate to cover the incremental cost of tolling. This makes the HOT lanes a reasonable option to consider in this corridor, pending further detailed investigations.

I-405 North HOT Lanes

This proposed project would provide HOT lanes extending from SR 520 in Bellevue to I-5 in Lynnwood, a distance of 14 miles. Two HOT lanes in each direction would extend from SR 520 to the SR 522 interchange in Bothell, made up of one new lane and converted from the existing HOV lane. From SR 522 to the I-5 Swamp Creek interchange, the existing HOV lane would be converted to a HOT lane. HOV 3+ traffic was assumed to be toll free. When comparing system performance, this concept was compared to one with the capacity additions done for general-purpose usage.



- The motivation for pricing is to optimize system performance.
- In 2030, the HOT lanes scenario would result in more throughput volume in the corridor than the non-priced alternative due to better utilization of additional capacity through pricing.
- Overall average speeds in the corridor can be expected to rise by 13 mph in the peak southbound direction during the am peak period, representing about \$15.6 million in time savings per year.
- The cost of building toll collection facilities is \$33 million.
- Tolling under a HOT lanes scenario could be expected to contribute an estimate \$59 million to capital improvements more than the cost to build the toll collection system.

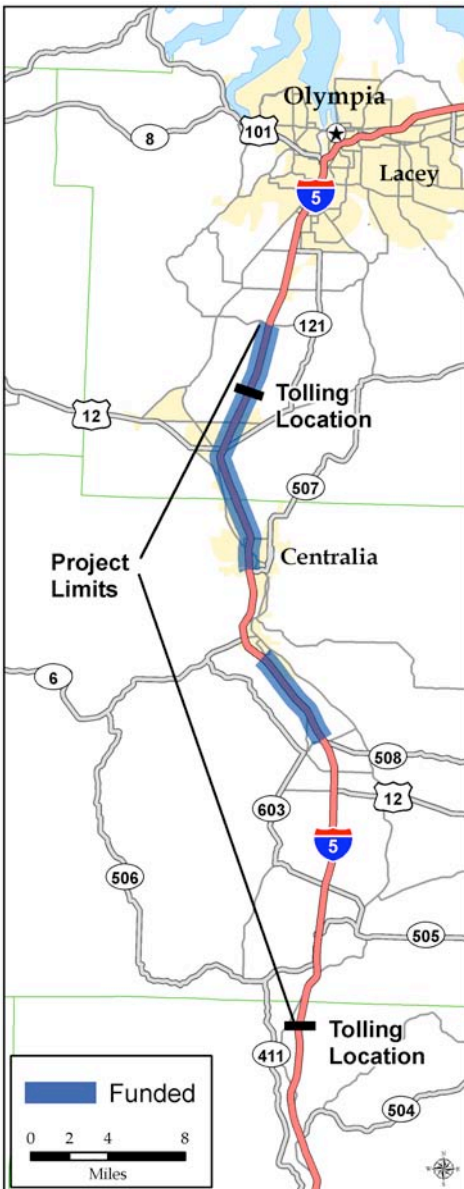
Policy Findings

As with the SR 167/I-405 concept, this HOT lane idea can provide increased utilization of the highway corridor and provide people a meaningful travel choice. The toll revenue is not expected to cover the cost of constructing the additional lanes, but it more than covers the additional cost of toll collection.

Tolling I-5 in Lewis County

WSDOT has long-standing plans to improve I-5 in Lewis County, with the objective to improve mobility particularly for freight, as well as safety along the 40-mile long section from the Toutle River Safety Rest Area in Cowlitz County to the Maytown interchange in Thurston County. This section of freeway is only four lanes (two in each direction), leading to increasing concerns

about congestion. Much of the corridor is already funded or expected to be funded, but there are two gaps covering more than 20 miles. Tolling in this corridor would be used to contribute to funding completion of the project.



- Hypothetical tolling zones were selected at two locations to minimize diversion to local roadways: one in the northern section of the corridor and the other near the southern terminus of the project.
- A hypothetical toll rate of \$1.50 at each tolling location (7.5 cents per mile for a full length trip) might divert 18 percent of the traffic from I-5.
- Tolling could be expected to contribute an estimated \$700 million toward capital improvements in the corridor. The toll level could be adjusted to match the needed funding amount.

Policy Findings

As with Snoqualmie Pass, tolling an existing freeway can produce a lot of revenue, especially when there are not many alternatives. The I-5 market in this region is not as captive as that on Snoqualmie Pass. The diversion of 18 percent of existing traffic on I-5 could cause issues on local roadways, however some of the toll revenue could be used to fund improvements on arterials in the corridor. Shorter trips are more likely to divert than longer trips, which can provide an operational benefit to the freeway.

Tolling Alaskan Way Viaduct and I-5

Replacement of the Alaskan Way Viaduct (AWV) is a high-profile, high-cost project that has often been discussed as a candidate for tolling. Previous studies by WSDOT have raised concerns about the amount of diversion to I-5 and the relatively low amount of revenue generated compared to the cost. One way to address this issue would be to include I-5 in the tolling plan, where the revenue could pay for upcoming I-5



rehabilitation needs as well as the AWV project. Since both I-5 and AWV are in the heart of Seattle, tolling could also be used to influence people's time or location of travel, so that the highway system can be used more effectively. We considered peak period toll rates ranging from 10 to 40 cents per mile, with off-peak rates at less than half those amounts, and early nighttime rates of one quarter those values.

- Estimated diversion from both I-5 and AWV ranges from 7-27 percent depending on the toll rate.
- Tolling both facilities are conservatively estimated to generate revenue sufficient to fund from \$400 million at the lowest rates to \$2.4 billion at the highest. About 8 percent of that amount is from the AWV revenue.
- Tolling is expected to result in some improvement to travel times along I-5, however these improvements may be offset by degradation in travel times on other routes. More study would be needed to generate results that are more definitive.

Policy Findings

Tolling I-5 and AWV could generate a significant amount of revenue to contribute to needed rehabilitation and reconstruction. Such tolling would result in diversion to other facilities, and it is unclear whether the negative impacts of the diversion would outweigh the benefits of the improved performance on the freeways.

Another concept to consider in this corridor would be tolling *only* during peak periods, leaving the highways free the rest of the time. Although this would generate less revenue, it would provide drivers a clear choice relating to time of travel.

Statewide Truck Tolling

Both Austria and Germany have recently implemented a nationwide truck tolling system for their autobahn systems. The overriding policy objective in both cases was to raise revenue from truckers in a way that more closely matched actual usage, and to encourage a shift of some freight from trucks to rail. In both cases, the tolls replaced a flat rate system of tax stickers (available in both annual, and 10-day versions) to use the highways. Although fuel taxes in Europe are much higher than in the U.S., the taxes are not dedicated to transportation. Both Austria and Germany are in central Europe, where a considerable share of truck traffic is just passing through – the tolls provide a more effective way to capture revenue from those through-trucks than the flat rate system. The Austrian system uses standard electronic toll collection technology (i.e., transponders and overhead gantries along the highway), and the German system uses new Global Positioning System (GPS) technology. Early reports from both systems is that they have been successful at generating the expected revenue, but less successful at diverting truck traffic to rail. There have also been reports about trucks diverting to secondary roads to avoid the tolls.

Does such a system make sense for Washington? The revenue generation potential of such a system is substantial. If single-unit trucks were charged 10 cents per mile and multi-unit trucks were charged 20 cents per mile, the annual revenue from tolling in 2004 statewide would have been over \$500 million. However, in the U.S., we have solved the problem of trucks paying their fair share of taxes in each state through the International Fuel Tax Agreement (IFTA) system, whereby truckers pay fuel taxes quarterly to their home state, and the revenues are distributed to other states based on reported mileage in each state. System-wide tolling, even if just on the freeway system is an expensive way to collect revenue -- raising fuel taxes on diesel would be far simpler.

Using tolling to encourage trucks to change their time of travel is another option in the congested part of Washington. Tolling trucks only on highways, however, may not be the best way to accomplish this objective, at least in the short term. The infrastructure and administrative requirements for such a system would be extensive; as would the complications involved in signing up truck drivers from around the country for a system that only pertains to one urban area. In the short to medium term, these practical considerations probably outweigh any potential congestion-relief benefits. Over the long term, the spread of telematics technologies into trucks could make such a system more manageable to implement, and tolling trucks may be a good first step towards a more extensive system that includes autos as well.

Policy Findings

A tolling system devoted to charging trucks is not needed to address a revenue problem – that problem can be solved through traditional tax increases. Tolling to improve system effectiveness is an intriguing idea, however, the details of making it work in one metropolitan area is an idea that is probably ahead of its time due to the complexities of system implementation. In the long term, truck tolling could be a precursor to more extensive highway tolling.

Container Fees

Washington's extensive port facilities generate a large volume of rail and truck traffic that must be accommodated by the State's transportation facilities. Puget Sound area ports handled over 2.8 million TEU (twenty-foot equivalent) containers in 2002, with that number forecast to rise to over 6.9 million by 2025. Although Washington is the beneficiary of the employment opportunities generated by the existence of these ports, it still has trouble keeping up with the associated transportation infrastructure needs. Container fees provide a mechanism to apply a direct user charge to international freight that does not involve a general tax increase. The dollars could be used to fund intermodal improvements that aid freight flows in the region, such as the FAST Corridor, extension of SR 167 to the Port of Tacoma, and key improvements to rail bottlenecks.

In many respects, container fees would be similar to the passenger facility charges (PFC) that airports may charge air passengers for airport infrastructure improvements. The fees could be applied by the State or by the Port – collected by the carrier, but passed on directly to the shipper. As with PFC, the fees would be used to pay for a specific list of improvements directly related to the improvement of freight movements in Washington. Ideally, the list of improvements would confer benefits on the shippers and carriers in excess of the cost of the fee itself.

The advantage of container fees over the more general truck-only tolling concept is that the fee could be incorporated into the existing accounting process related to freight movements. Although there would be administration expenses, they would not be as extensive as roadside or GPS-based tolling concepts.

The only application of container fees being applied in the U.S. is the Alameda Corridor, where a 20-mile-long rail cargo expressway links the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. Container fees of \$33.50 per loaded 40-foot container (lower fees for other types of rail cars) are collected to pay a portion of the project cost. The secret to success of this project was the clear benefits to all of those participating in the finance plan, including the ports, railroads and various levels of government, and the partnership those groups formed to carry out the project. The Alameda Corridor is a unique situation – replicating that success in Washington will require a clear definition of objectives, a focused list of projects to be funded with the fees, and financial commitments from other partners to contribute to the projects.

The ports of LA and Long Beach have also recently rolled the PierPASS traffic management program aimed at spreading the peak traffic loads at the port. PierPASS assesses a fee of \$80 per 40-foot container for cargo that moves through truck gates during peak hours (Mondays-Fridays from 3:00 a.m. to 6:00 p.m.) The program has effectively shifted about 30 percent of freight traffic to off-peak times, thereby reducing congestion. PierPASS came about as a voluntary program instituted by the ports to avoid the potential of a threatened program to be enacted by government. The success of the PierPass program is the extreme congestion evident in the region, and the willingness of all parties to extend the normal hours of port operation